

ABSTRACT OF THE DISCLOSURE

A method includes forming a material over a substrate, oxidizing the material, and separately from the oxidizing, converting at least a portion of the oxidized material to a perovskite-type crystalline structure. The material can include an alloy material containing at least two metals. The method can further include retarding interdiffusion of the two metals. Such methods exhibit substantial advantage when at least two of the metals exhibit a substantial difference in chemical affinity for oxygen. A passivation layer against carbon and nitrogen reaction can be provided over the material. The passivation layer can be oxidized into a dielectric layer. The perovskite-type material can also be a dielectric layer.